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New Species and New Records in *Elaphoglossum* sect. *Polytrichia* subsect. *Hybrida* (Dryopteridaceae) from the Neotropics

ALEXANDER FCO. ROJAS-ALVARADO
Escuela de Ciencias Biológicas, Universidad Nacional de Costa Rica, Apdo. 86-3000, Heredia, Costa Rica, email: e-mail: alfrojasa@yahoo.com

ABSTRACT.—Three new species of *Elaphoglossum* sect. *Polytrichia* subsect. *Hybrida* from the Neotropics are described here: *E. lucens*, *E. martinezianum*, and *E. reductum*. The first species is characterized by blackish, lustrous and rigid rhizome scales and short fertile fronds. The second species is characterized by stipe and blade margins with long scales and blades elliptic and abaxially scaly. The third species is easy to recognize by small and curved scales and obovate blades. New geographic records are reported for three species, thus expanding their ranges.

KEY WORDS.—Ferns, Neotropics, taxonomy, systematics

Mickel and Atehortúa (1980) characterized *Elaphoglossum* sect. *Polytrichia* subsect. *Hybrida* as having a short-creeping or ascending rhizome, long stipes, usually papyraceous blades, blade scales black or dark brown and distributed especially along the margin and costa, and spores with low ridges. The *Elaphoglossum erinaceum* (Fée) T. Moore complex has been considered difficult taxonomically because of its variation in blade shape and size, and size, color and habit of the rhizome scales (Mickel, 1991, 1992, 1995; Mickel and Beitel, 1988). Relatively little work has been done on the taxonomy of the section except for that of Rojas (2002, 2003) from the Neotropics.

As a result of my research on *Elaphoglossum*, I herein describe three new species belonging to the group of *E. erinaceum* and provide new distributional records for three species.

Elaphoglossum lucens A. Rojas, ***sp. nov.*** TYPE.—PERU. **Cajamarca**: San Ignacio Province, Distrito Huarango, El Convento, 5°13′S, 78°40′W, 1100–1400 m, 2 July 1996, *J. Campos & E. Rodríguez 2866* (holotype: MO). **Figs. 1A, 2.**

A Elaphoglosso kessleri A. *Rojas rhizomatis squamis brevioribus nigris lucens, frondibus fertilibus brevioribus differt.*

Epiphytic; rhizome 7–10 mm in diameter, compact, ascending; rhizome scales 2–5 × 0.3–0.6 mm, linear-lanceolate, dark brown to blackish, lustrous, rigid, marginally entire; fronds 20–34 cm long; stipe 4–9 cm long, 1/6–2/7 of the frond length, yellowish to stramineous, scaly, the scales 2.0–3.5 × 0.1–0.4 mm, subulate, dark brown to blackish, bulliform basally, sparse to medium-dense, marginally entire; phyllopodia 2–7 mm long; blade 15–29 × 1.1–2.7 cm, linear-elliptic, basally cuneate, apically acuminate; costa strami-

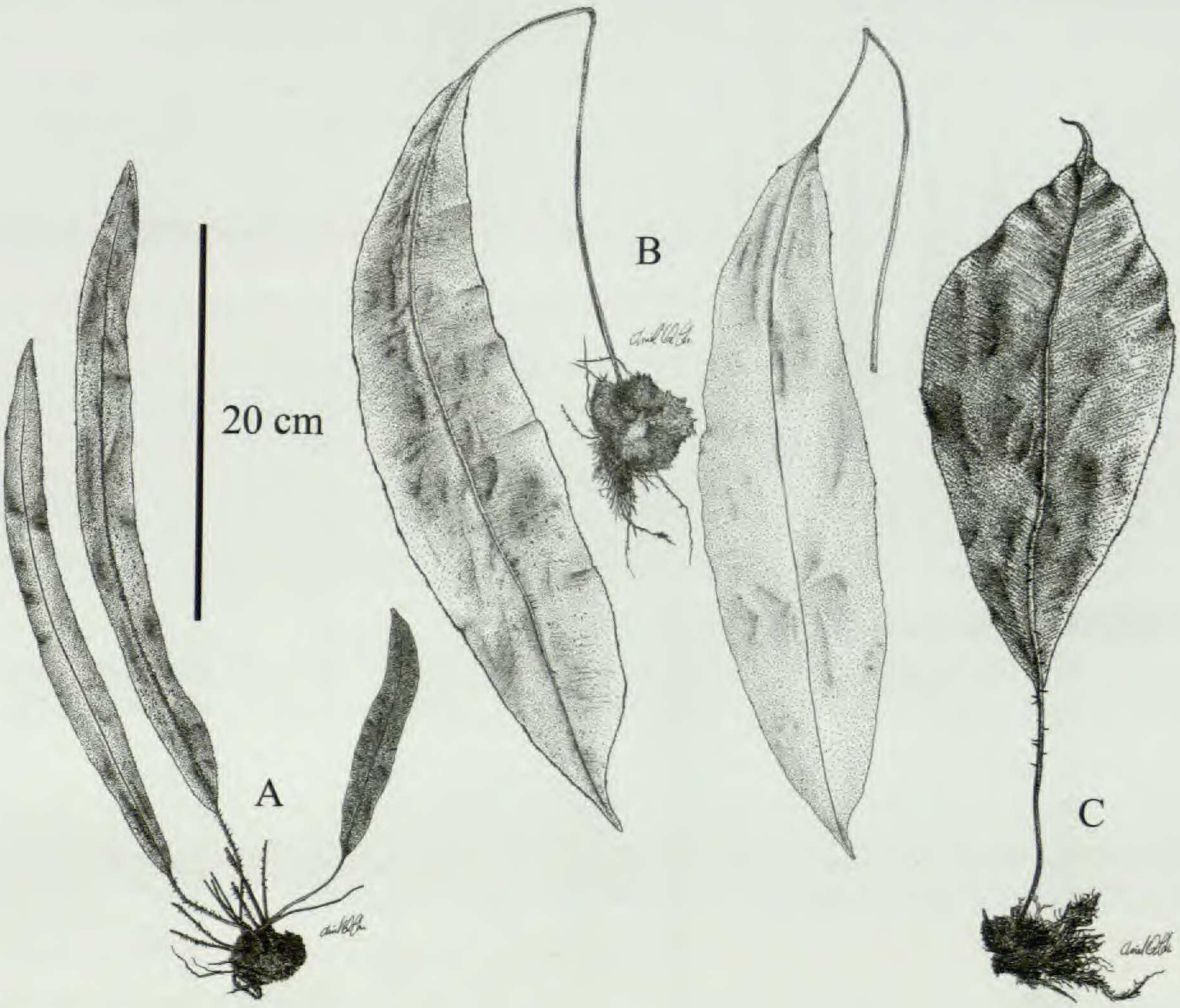

FIG. 1. Type specimen of: A. *Elaphoglossum lucens* (*J. Campos & E. Rodríguez 2866*, MO). B. *E. martinezianum* (*D. Breedlove & A. Smith 31630*, MEXU). C. *E. reductum* (*A. Rojas et al. 5043*, CR).

neous, scaly on both sides, the scales 1–2 × 0.2–0.5 mm, linear-lanceolate to linear, blackish, marginally entire to denticulate; margin scales 0.5–1.5 × 0.1–0.3 mm, linear-lanceolate, blackish; adaxial surface scaly, the scales similar to the margin ones; abaxial surface with two types of hairs, some ca. 0.1 mm, single to stellate, dark brown to blackish, appressed, the others less than 0.1 mm long, single, patent, hyaline, glandular, present on and near the costa; veins single to bifurcate near the base, 1–1.5 mm distant, at angles of 60–70° with respect to the costa; fertile fronds 10–19 cm long, shorter than the sterile; stipe 1/3–2/5 of the frond length; blade 6.0–9.5 × 1.3–1.5 cm; interesporangial scales absent.

DISTRIBUTION.—Known only from the type collection.

ETYMOLOGY.—The specific epithet of the new species refers to its lustrous rhizome scales.

Elaphoglossum lucens differs from *E. kessleri* A. Rojas by shorter (2–5 mm vs. 6–10 mm), dark brown to blackish (vs. yellowish to brown), lustrous (vs.

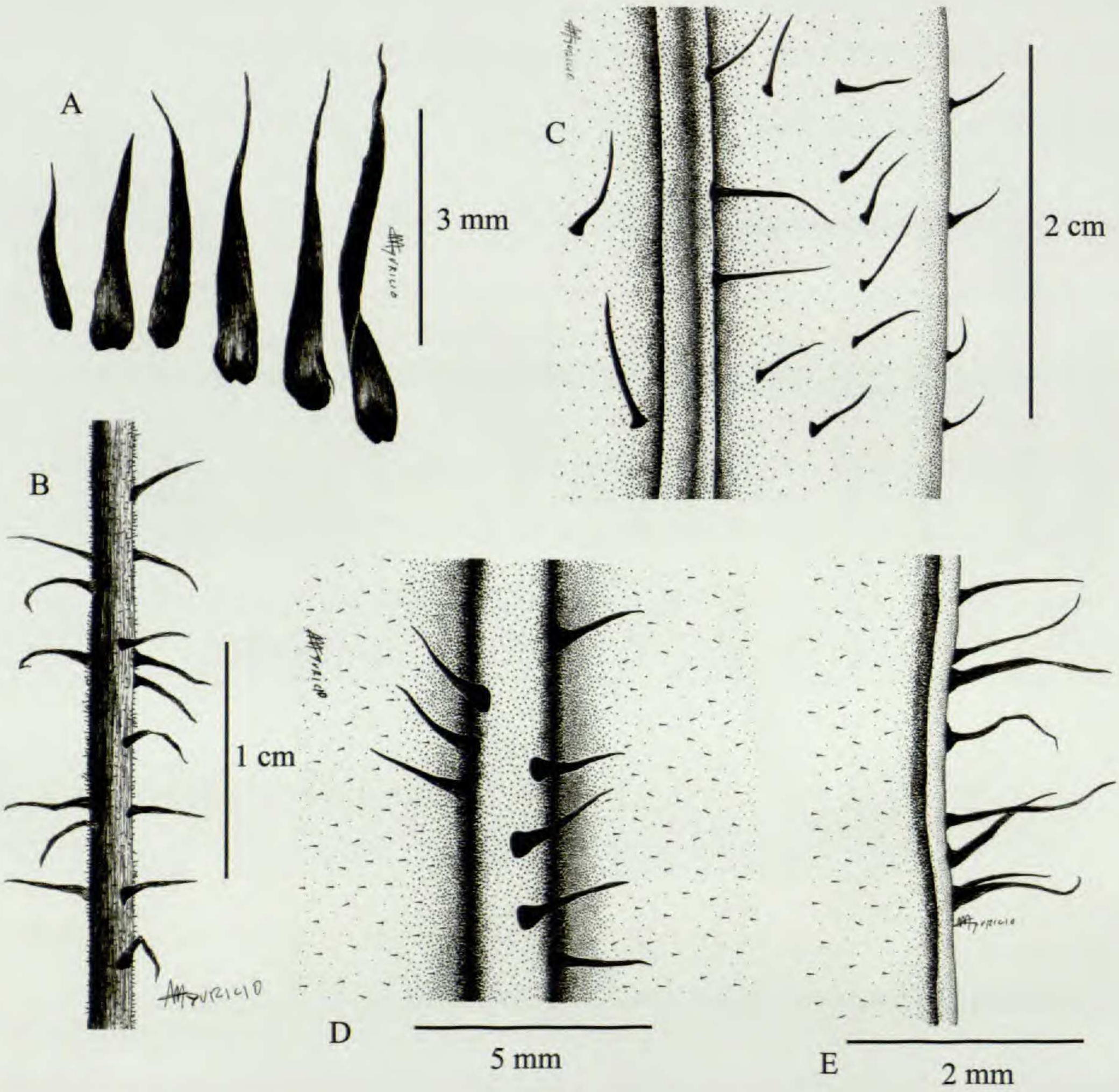

FIG. 2. *Elaphoglossum lucens* (*J. Campos & E. Rodríguez 2866*, MO): A. Rhizome scales. B. Stipe detail. C. Adaxial blade detail. D. Abaxial costa detail. E. Abaxial blade margin detail.

opaque) and rigid (vs. flaccid) rhizome scales, shorter (1/6–2/7 of the frond length vs. ca. 1/3) stipes and shorter (10–19 cm long vs. 25–37 cm) fertile fronds with relatively shorter (1/3–2/5 of the frond length vs. 2/5–2/3) stipes. It resembles *E. crispipalea* M. Kessler & Mickel but differs by shorter (2–5 mm vs. 5–9 mm), dark brown to blackish (vs. reddish-brown to orange), entire (vs. denticulate), flat (vs. with crispate margin) rhizome scales, and scaly (vs. glabrous) blades (Figs. 1A, 2).

Elaphoglossum martinezianum A. Rojas, ***sp. nov.*** TYPE.— MEXICO. **Chiapas**: SE side of Volcán Tacaná, above Talquian, 2200 m, 16 Jan 1973, *D. Breedlove & A. R. Smith 31630* (holotype: MEXU). **Figs. 1B, 3.**

A Elaphoglosso barbato (H. Karst.) Hieron. *lamina elliptica cum basi cuneata differt.*

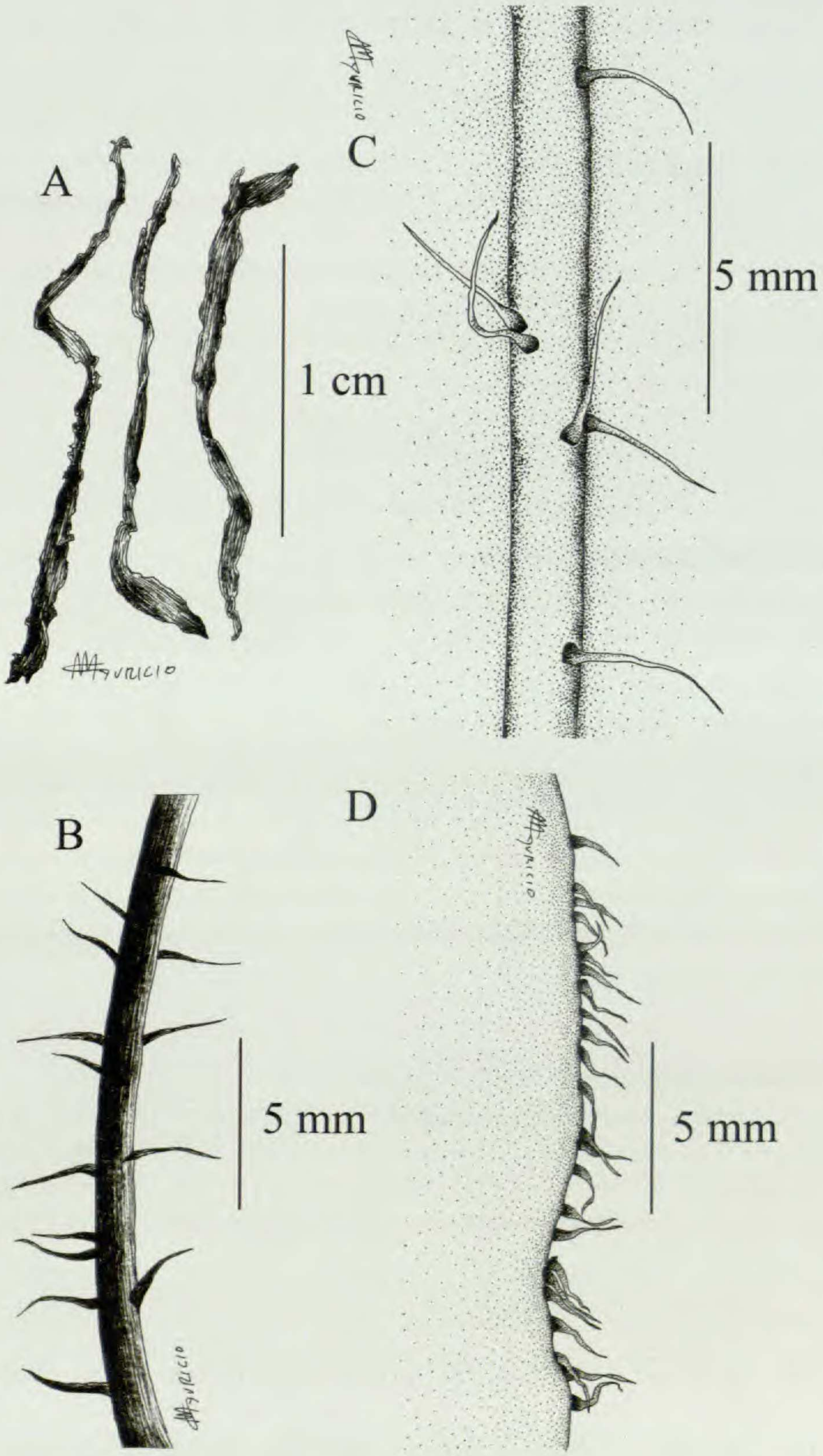

FIG. 3. *Elaphoglossum martinezianum* (*D. Breedlove & A. Smith 31630*, MEXU): A. Rhizome scales. B. Stipe detail. C. Abaxial costa detail. D. Adaxial blade margin detail.

Epiphytic; rhizome 6–8 mm in diameter, compact, ascending; rhizome scales 10–18 × ca. 1 mm, linear, orange-brown, opaque, flaccid, marginally entire; fronds 50–65 cm long; stipe 20,5.22.5 cm long, ca. 2/5 of the frond length, yellowish to stramoneous, scaly, the scales 1–3 × 0.2–0.5 mm, subulate, dark brown to blackish, buliform basally, sparse to dense, marginally entire; phyllopodia 4–7 mm long; blade 29.5–32 × 7.0–7.2 cm, elliptic, basally cuneate, apically acuminate; costa stramineous, scaly abaxially, the scales 2–4 × 0.2–0.5 mm, linear-lanceolate to linear, reddish-brown to blackish, marginally entire to denticulate; margin scales 1.5–2.0 × 0.1–0.3 mm, linear-lanceolate, reddish-brown to blackish; adaxial surface glabrous; abaxial surface scaly, the scales 1.5–3 × 0.1–0.3 mm, linear-lanceolate, blackish, appressed; veins single to bifurcate near the base, 1–1.5 mm distant, in an angle of 60–70° with respect to the costa; fertile fronds not seen.

DISTRIBUTION.—Known only from Chiapas, Mexico; 1550–2200 m.

ETYMOLOGY.—The specific epithet is dedicated to Marta Martínez Gordillo, Mexican botanist who helped me with my doctoral thesis.

PARATYPES.—MEXICO. **Chiapas**: Municipio Unión de Juárez, en el Volcán Tacaná, a 5 km al S de Talquián, 1550–1700 m, 8 Feb 1987, *E. Martínez et al. 19796* (MEXU).

Elaphoglossum martinezianum is similar to *E. barbatum* (H. Karst.) Hieron. by blades abaxially scaly, but it differs by longer (10–18 mm vs. 4–8 mm) rhizome scales and elliptic (vs. lanceolate to oblong) blades with cuneate (vs. obtuse to truncate) bases. Also similar is *E. mexicanum* (E. Fourn.) A. Rojas; however, *E. martinezianum* differs by stipe and blade margins less densely scaly, proportionaly longer (ca. 2/5 of the frond length vs. 1/5–1/3) stipe, broader (7.0–7.2 cm vs. 2.5–4.5 cm) blade and abaxialy scaly (vs. not scaly) (Figs. 1B, 3).

Elaphoglossum reductum A. Rojas, ***sp. nov.*** TYPE.—COSTA RICA. **Cartago**: Cantón de Turrialba, Reserva Indígena Chirripó, camino a Valle Escondido, entrando por Las Brisas de Pacuarito, entre casa de Don Felipe y Quebrada Olomina (límite del parque), 9°56′40″N, 83°28′40″W, 750–850 m, 13 Apr 1999, *A. Rojas et al. 5043* (holotype: CR; isotypes: INB, MO). **Figs. 1C, 4.**

A Elaphoglosso erinaceo (Fée) T. Moore *similis, rhizomatis squamis brevioribus, lamina ovobata differt.*

Epiphytic; rhizome 7–10 mm in diameter, compact, ascending; rhizome scales 0.5–2.0 × 0.3–0.5 mm, ovate to lanceolate, grayish-brown to brown, buliform to irregular, marginally entire; fronds 33–43 cm long; stipe 9–22 cm long, 1/4–1/2 of the frond length, yellowish to stramineous, scaly, the basal scales 1–3 × 0.5–1.0 mm, ovate to lanceolate, yellowish-brown, flat or curved (but no bulliform), marginally entire, the apical scales 3–6 × 0.2–0.5 mm, subulate, dark brown to blackish, sparse, marginally entire; phyllopodia 3–7 mm long; blade 24–26 × 10–11 cm, obovate, basally cuneate, apically

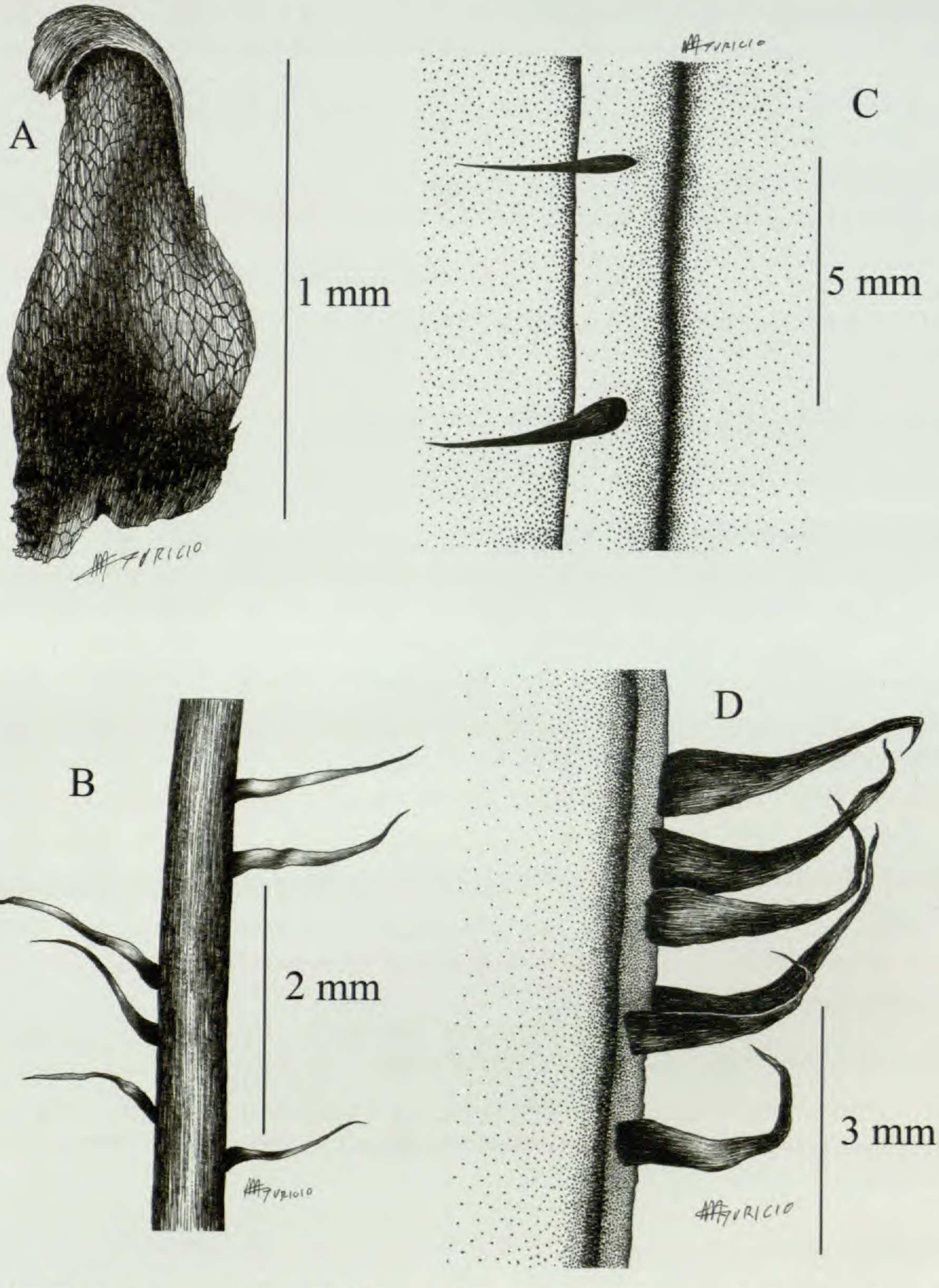

FIG. 4. *Elaphoglossum reductum* (*A. Rojas et al. 5043*, CR): A. Rhizome scale. B. Stipe detail. C. Abaxial costa detail. D. Abaxial blade margin detail.

acuminate; costa yellowish to stramineous, scaly, the scales similar to those of the stipe; marginal scales 1.5–3.0 × 0.2–0.4 mm, subulate, blackish; costa and abaxial surface with two types of hairs, some less than 0.1 mm in diameter, stellate, black, denser near the costa, the others less than 0.1 mm long, single,

patent, hyaline, glandular; veins single to bifurcate near the base, 1–1.5 mm distant, at angles of 65–75° with respect to the costa; fertile fronds not seen.

DISTRIBUTION.—Known only from the Fila Matama in the Caribbean side of Cordillera de Talamanca in Costa Rica; 720 m.

ETYMOLOGY.—The specific epithet of the new species refers to its smaller rhizome scales compared with those of *E. erinaceum*.

Elaphoglossum reductum differs from *E. erinaceum* (Fée) T. Moore in having smaller [0.5–2.0 × 0.3–0.5 mm vs. 8–17 × (0.8–) 1.5–3.5 mm], ovate (vs. linear) and grayish-brown to brown (vs. yellowish to orange) rhizome scales and broader (10–11 cm vs. 4–9 cm), and obovate (vs. elliptic) blades with to base cuneate (vs. long-decurrent). No species in subsect. *Hybrida* has smaller rhizome scales and obovate blades (Figs. 1C, 4).

NEW DISTRIBUTION:

Elaphoglossum angustioblongum A. Rojas, Revista Biol. Trop. 51: 34. 2003. TYPE.—PANAMÁ. **Chiriquí**: Las Cumbres, *T. Croat & D. Porter 16078* (holotype: MO!).

PREVIOUSLY KNOWN DISTRIBUTION.—Costa Rica and Panama.

MATERIAL OF NEW DISTRIBUTION.—MEXICO. **Chiapas**: Sierra Madre de Chiapas, ridge top along trail to E from high point on road between Finca Liquidambar and Nueva Colombia, ca. 15°40′N, 92°44′W, ca. 2500 m, 18 June 1985, *J. Luteyn & M. Lebrón 11601* (MEXU).

Elaphoglossum baquianorum A. Rojas, Revista Biol. Trop. 51: 33–48. 2003. Type: Costa Rica, Limón/Puntarenas, entre Cerro Kasir y Cerro Nai, 2940–3100 m, *A. Rojas et al. 3208* (holotype: INB; isotypes: CR, MO, NY, UC, US).

PREVIOUSLY KNOWN DISTRIBUTION.—Mexico, Guatemala, Honduras, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama.

MATERIAL OF NEW DISTRIBUTION.—BOLIVIA. **La Paz**: Franz Tamayo, along trail between Pelechuco and Pata, along the Río Pelechuco down stream from Pelechuco, 14°46′S, 69°01′W, 3200 m, 16 Nov 1988, *M. Lewis 881732* (MO).

Elaphoglossum scolopendrifolium (Raddi) J. Sm., Bot. Mag. 72: 17. 1846. *Acrostichum scolopendrifolium* Raddi, Pl. Bras. 1: 4, t. 16. 1825. Type: Brazil. Rio de Janeiro: *Raddi s.n.* (holotype: PI, not seen).

PREVIOUSLY KNOWN DISTRIBUTION.—Mexico and Brazil.

MATERIAL OF NEW DISTRIBUTION.—PERU. **Amazonas**: Provincia of Bagua, ca. 12–17 km (by trail) E of La Peca, ca. 1700–2100 m, 28 June 1978, *P. Barbour 2528* (MO).

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